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Institutional Repository Management Models That Support Faculty Research Dissemination

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Introduction

When promoting institutional repositories (IRs), there is often a disconnect between librarians and their faculty. Emphasizing escalating journal prices, open access mandates, and collection building, librarians tend to approach faculty scholarship as an organizational resource to be managed. In contrast, faculty are often focused on issues such as tenure, career development, and academic freedom. Their scholarship is a personal activity which represents their accomplishments and contributions. Unless librarians conscientiously work to bridge this values gap, institutional repositories can flounder, sitting empty and underutilized.

One strategy librarians can use to connect with faculty is to focus on supporting them in the dissemination of their scholarship. Going beyond traditional research support, librarians have the opportunity to engage faculty throughout the scholarly communication life cycle. Using the services available through institutional repositories, librarians can consult on copyright and journal selection, offer alternative publishing mechanisms, assist in making published works openly accessible, create customized researcher pages, and provide publication and usage data. Creating and utilizing management models that ensure the delivery of these types of IR services can not only provide a needed infrastructure to assist in these efforts, they can also help showcase the value and impact of the university as a whole.

Background

In 2007, Dr. David Shulenberger provided remarks to the 151st Association of Research Libraries Membership Meeting. During his presentation he discussed a survey he had conducted of provosts, asking if their universities had strategies for disseminating the scholarship they produced. Only a handful of those surveyed were able to provide any kind of affirmative response. Yet at the same time, Shulenberger noted that when provosts did offer a strategy, it often only included faculty evaluation criteria, which for most universities consists of a tenure system (Shulenberger, 2007).

The dissemination of research results is typically left up to the individual professor. As Shulenberger found, few universities have mechanisms in place to assist faculty in sharing their scholarship and ensuring the broadest reach possible. Additionally, tenure systems promote publishing in peer-reviewed publications as the only acceptable avenue for sharing one's work. Yet, despite their discipline expertise, many professors do not have the time or experience to fully understand issues such as negotiating copyrights, evaluating journals, or using alternative publishing options. Placing all dissemination responsibilities on faculty can limit the reach and impact of their research.

Universities have a responsibility to ensure that the scholarship produced at their institution is both discoverable and accessible to the greatest number of people possible. This idea was articulated in a 2009 paper co-sponsored by the Association of Research Libraries, the Association of American Universities, the Coalition for Networked Information, and the National Association of State Universities and Land Grant Colleges. In "The University's Role in the Dissemination of Research and Scholarship – A Call to Action," they stated:

Traditionally, universities have relied largely on formal publication systems to ensure dissemination and their critical function in vetting new scholarship, but digital technologies have opened the door to an additional and broader range of dissemination possibilities and have generated entirely new forms of content that must be shared. This shift demands that universities

take on a much more active role in ensuring dissemination of the knowledge produced by their institutions — both now and in the future. The shift also positions universities to play an increasingly active role in dissemination... (Association of Research Libraries et al., 2009).

By adopting a dissemination mission, universities have the potential to secure access to research and promote the creation of new knowledge.

In addition to advocating for greater university involvement in research dissemination, expectations are changing about how scholarship, particularly the data supporting academic research, is preserved and made available. In 2008, the National Institutes of Health began requiring "scientists to submit final peer-reviewed journal manuscripts that arise from NIH funds" to PubMed Central (National Institutes of Health, 2013). The Public Access Policy "ensures that the public has access to the published results of NIH funded research to help advance science and improve human health." Similarly, in 2011, the National Science Foundation began requiring grant applicants to include data management plans providing information on how the data will be shared with other researchers (National Science Foundation, 2013). Expanding on these initiatives, the Office of Science and Technology Policy ordered federal agencies to develop plans enabling access to data sets and publications resulting from federal grants (Holdren, 2013). These policies place new requirements on both the individual researcher and their institutions to provide access to scholarship that has been supported by public funds.

In response to these changing expectations, libraries are beginning to develop new tools and services. When doing so, staff should consider the management models being used and whether or not they truly support the research dissemination mission. Birkinshaw and Goddard (2009) stated that, "A management model is the choices made by a company's top executives regarding how they define objectives, motivate effort, and coordinate activities, and allocate resources." In the case of institutional repositories, the management models utilized not only impact how resources such as time, money, and staff are allocated, they also direct the primary mission and focus of the repository. Management models that support research dissemination allow the library to go beyond traditional activities and accepted professional norms. Rather, focusing on dissemination requires libraries to examine the needs of their local research community and find ways, often on an individual basis, to support them in sharing their scholarship. Whether it is showcasing a professor's work or providing usage data for a specific publication, libraries can use these management models to support research dissemination efforts on a university-wide basis.

Service Framework

When Clifford Lynch (2003) first described institutional repositories, he stated they were:

...a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution.

Framing an institutional repository as a service is an important step as it requires library staff to focus outward and make decisions that benefit the individuals and groups they are serving. This is in contrast to concentrating their efforts primarily on the creation of a collection of digital objects. For example, repository staff work to create quality records for their full-text documents, guaranteeing access to these items. However, a repository may also create metadata-only records for any faculty publication they cannot include in their collection, such as works published in journals with restrictive copyright policies.

Such a strategy flies in the face of the staunch open access movement prevalent in the library profession. Although open access is an important and valuable method for disseminating research, repository staff at Boise State found it was not always the best fit for a particular work. Depending on the individual and discipline, some authors were hesitant to make publicly accessible an earlier version of their work, expressing concerns about quality. In contrast, other faculty found the processes used to solicit author permissions and securing rights, to be bureaucratic excess. These authors often preferred instead to post, regardless of copyrights, the published version of their work on their department or other webpage.

Although creating metadata-only records risks developing the dreaded empty repository (Davis and Connolly, 2007), the benefit of these kinds of bibliographic services is that they increase the discovery of a professor's work and assist in gathering complete data about the scholarship produced at a university. It also helps establish repository staff as a consultant and partner when researchers publish their work. As repository staff explain why they cannot post a published version of a professor's article, they begin to educate faculty on their author rights.

A service framework also requires staff to consider the policies and procedures they develop. For example, many repositories have worked with their graduate programs to include electronic copies of theses and dissertations. Sometimes students wish to limit or even prohibit access to their work as they are hoping to receive patent rights or they are attempting to publish their findings in a book or journal. Instead of pushing for open access as the only option available through the repository, libraries should consider supporting graduate students and their faculty mentors in managing their intellectual property rights. Repository staff can offer time limited embargoes and consult on copyright licenses and transfer agreements. This kind of management shift is also described by University of Rochester IR staff when they had to abandon their extensively designed policies regarding the establishment of researcher communities. Faculty had no need for such services as they tended to "work as individuals, not as groups" (Foster, Gibbons, Bell, and Lindahl, 2007). Developing policies that allow for more options and managing those services well, enables institutional repositories staff to facilitate dissemination activities that are most appropriate for that author and their scholarship.

Institutional repository staff should also consider the language they use and how they present the services they offer. As with many disciplines, librarians tend to use terminology that is only meaningful to others in the profession. Concepts such as "ingest" and "digital object" are confusing and faculty are not aware of the context in which these words are being used. Even the term "institutional repository" is ambiguous until a professor has had their work included in the IR collection. Dorothea Salo (2008) noted a response from one graduate student who said, "Institutional repository? Forgive me, but—that sounds vaguely obscene." Similarly, forms, instructions, and outreach materials should be viewed from the perspective of the author. Although libraries may still want to make faculty aware of issues such as rising journal prices, they may decide to focus their communication initiatives on how the institutional repository can help faculty promote their scholarship.

Another way the service framework can support research dissemination is through the responsive development of novel IR services. As part of their implementation process, Boise State created an Access database to track author and publisher data. Although time consuming, gathering copyright policy information enabled repository staff to identify publishing trends specific to their university. This information can answer questions such as who are the primary publishers of Boise State's scholarship, how accessible is that work once it has been published, and what strategies can the university develop to enable greater discovery. These types of questions are difficult to answer without a centralized service.

Thinking in terms of services that cater to the needs of the university and its members enables the institutional repository to better support the research dissemination mission. However, this approach may require repository staff to abandon their original ideas for how a particular feature or service is delivered. They may also have to ignore recommendations from the larger library community if they do not support the specific needs of their university. Framing institutional repositories first as a set of services and second as a collection of scholarly objects will direct how the IR is managed and the kind of impact it can have on its university community.

Mediated Deposit

The Mediated Deposit model is essentially the "do it for them" approach. Instead of requiring faculty to determine if a publication is eligible for inclusion and then uploading their documents into the repository, libraries using the mediated deposit model will carry out these activities on the behalf of the author. For example at Boise State University, library staff are responsible for identifying eligible citations, reviewing the publisher's copyright policy, soliciting the author's permissions, obtaining the correct version of the publication, and uploading the document into the institutional repository. The benefit of this approach is that it does not require busy faculty who are focused on the details of their teaching and research to have to deal with copyrights, manuscript formatting, metadata creation, or uploading processes. Additionally, this model allows library staff to comply with all copyright policies, while also

ensuring quality control for the final document and metadata record. Although this model benefits both the author and the library staff, it does require an infrastructure, consisting of both human and technological resources, to be in place.

Adequate staffing is a critical factor to be considered when adopting this model. Besides having enough employee hours dedicated to managing the repository's services, the staff will need an array of skills. High quality customer service is essential for repository employees as they solicit author permissions and manuscripts. Having the ability to delicately navigate multiple requests for the "right" version of a publication is critical to keeping faculty engaged with the repository. In contrast, staff will also need the technical expertise to be able efficiently manage bibliographic information and upload quality metadata. Repository staff must have the authority, flexibility, and ability to problem-solve and respond to unique requests from faculty and departments. Finally employees need a sufficient level of expertise in scholarly communication issues to be able to review copyright transfer agreements, answer faculty questions, and establish procedures that most effectively support author rights. Brewerton (2012) further outlines the kinds of skills librarians need to support researchers, including consulting on research outputs.

At Boise State, the institutional repository functions as a separate unit currently housed in the Technical Services area. The staff consists of a librarian and two classified staff. The librarian serves as the project manager responsible for creating policies, establishing initial workflows, and problem-solving any issue outside of established practices. The Library Assistant III is responsible for identifying eligible publications, reviewing publisher copyright policies, contacting faculty, and maintaining individualized researcher pages. The Library Assistant II is responsible for formatting and uploading documents into the repository system. The established workflow requires bibliographic information to be transferred between the two classified staff members creating a series of checks and balances when working with faculty publication metadata. Additionally, the librarian carries out "spot checks" as new works are added to the repository. When unique requests come in, the repository staff are also able to assess the available resources, both technical and human, to determine how to best fulfill them.

The other critical area that must be available when managing repository deposits is a functional and flexible technological infrastructure. Whether staff choose to use a simple spreadsheet or develop a more complex system, they will need to be able to track citations, publisher copyright policies, and author permission. They will also need to be able to transfer the necessary information, including required copyright statements and author data, to the individual uploading the document into the institutional repository. Unfortunately most IR platforms do not have the necessary tools built into their systems which allow for this kind of management. If a library decides to adopt this model, resources will need to be allocated to develop the tools required to support this management model.

Mass Customization

The concept of mass customization was developed in the early 1990's primarily by Joseph Pine (1993, pp. 46-47) to describe a shift in business processes away from mass production which focused on standardization and "economies of scale". Instead, the focus turned towards mass customization which was characterized by processes that utilize variety and flexibility, often driven by newer technologies and a modular approach, to deliver a unique product based on individual requirements. Additionally, mass customization relied on "short product development cycles" and "highly skilled workers".

This model which enables the production of individualized goods and services, holds great potential for institutional repositories who wish to engage with faculty research. One example of how this approach can be applied is through the use of the SelectedWorks option available with the Digital Commons repository platform. SelectedWorks sites provide individual webpages showcasing a professor's work. Although faculty can set up their own SelectedWorks site, Boise State repository staff have chosen to create and maintain the pages on behalf of the faculty. Initially the creation of each SelectedWorks site required extensive and time consuming detailed work to provide a unique page for each professor. However, with the adoption of the mass customization model, efforts were focused on key features and content which could be differentiated to provide maximum impact. Specifically, each site is designed to meet a basic standard by including core content such as an introductory paragraph, photograph, professional title and expertise, and at a minimum selected publications illustrating the scope of the professor's work. Then, depending on the focus of the professor's research and information provided on their CV, other content can be added such as awards, courses taught, and external links. Further customization is also possible when requested by faculty. Once

launched, the sites are maintained by the repository staff who have integrated the updating process into their main ingest workflow. This mass customization approach has been particularly successful as Boise State's repository staff now manage almost 400 SelectedWorks sites, which is approximately 80% of all Boise State tenure track faculty.

Institutional repositories should be thoughtful however, when adopting this management model. Being able to provide customizations on a large scale may require the adoption of technologies that can support such individualized service. Despite this caution, library staff have the opportunity to use their IR to extend these principles of mass customization into other service areas to support research dissemination efforts. For example, library staff could provide usage data to an individual professor about their publications, facilitating dissemination decisions and supporting tenure and other promotion activities. By using new technologies and focusing on key elements that can be customized depending on specific needs, repository staff will be able to utilize this model to provide individual value to their users.

Examples of New Institutional Repository Services

The focus on management models is important because it highlights the decisions that libraries must make in order to fulfill the research dissemination mission promoted in the 2009 "The University's Role in the Dissemination of Research and Scholarship" report. The results of these efforts are new and value-added services provided to faculty and the university at large.

Copyright and Publishing Consultation

When repository staff utilize the mediated deposit approach they gain incredible expertise in copyright transfer agreements and usually have detailed information about publisher policies. This knowledge can be shared with faculty on a one-on-one basis to assist them in deciding which publications they would like to submit their work. Additionally, as previously described, repository staff can assist faculty in further disseminating their work after it has been published, such as uploading it to an institutional repository or explaining other available author rights.

Library-Based Publishing

In Fall 2007, a survey was conducted of ARL member libraries regarding their publishing services. The follow-up report noted several common services provided by libraries including: hosting, digitization, copyright advising, and editing (Hahn 2008). Although there are many different components involved in publishing, one of the most common activities libraries are engaging in is the hosting of electronic journals. Library-based journals and other publishing services are particularly important as they tap into unmet needs by providing a dissemination mechanism for unique and often local content not typically distributed by traditional publishers.

Publication and Usage Data Services

During the 2010 ALCTS Midwinter Symposium, Susan Gibbons predicted that "Another emerging need for the expertise of technical services staff in academic libraries will develop from the expanding importance of the gathering and maintenance of institutional metrics." Many repositories already have the capability of providing this kind of data on both an individual author level, as well as for departments and entire universities. For example Digital Commons repositories provide each author an individualized *Author Dashboard* which includes download statistics and basic user information for each uploaded document. Repositories that retain copyright policy information can provide publishing trend data, helping to inform university-wide policies such as open access mandates. Finally, the high quality metadata created by repository staff can be shared with other campus stakeholders or reused to further promote scholarly accomplishments. Boise State's repository utilizes the faculty publications deposited into the IR system to create an annual university author bibliography (Armstrong and Stringfellow, 2012).

Conclusion

As libraries work to define their role in the constantly changing university environment, focusing on how research and scholarship is disseminated will provide unique and important opportunities. Libraries are well suited to support these efforts on both an individual researcher and university-wide basis. However as new tools and services develop, it will be important for library staff to focus on providing quality services while also meeting individualized needs. The management models described in this paper will serve as valuable starting place for libraries wishing to accomplish these goals.

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